

Description of thirteen new species of Muricidae (Gastropoda) from Australia and the New Caledonian region, with range extensions to South Africa

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ABSTRACT

The present paper reports on new species and new geographical range extensions, resulting from recent expeditions conducted by ORSTOM, Nouméa, the Muséum National d'Histoire Naturelle, Paris, the Australian Museum, Sydney, the Western Australian Museum, Perth, and the Natal Museum, Pietermaritzburg. The following new taxa are described: *Pterynotus stenostoma* (New Caledonia), *Pterynotus crauroptera* (New Caledonia), *Pazinotus spectabilis* (Loyalty Ridge), *Muricopsis charcoti* (New Caledonia), *Muricopsis bargibanti* (Chesterfield Reefs), *Muricopsis diamantina* (Western Australia), *Typhis westaustralis* (Western Australia), *Typhis trispinosus* (Queensland, Australia), *Typhis insolitus* (New Caledonia), *Siphonochelus lozoueti* (New Caledonia), *Trophon lacrima* (New Caledonia), *Trophon tirardi* (New Caledonia), and ?*Trophon aberrans* (Queensland, Australia). Three species, *Pterynotus fulgens* Houart, 1988, *Muricopsis auratus* (Kuroda & Habe, 1971), and *Siphonochelus tillierae* Houart, 1986, are new records for southern Africa.

INTRODUCTION

New collecting techniques as well as intensive and systematic searches in several parts of the world have permitted the discovery of many new taxa or new geographical ranges in the Muricidae since the nineteen-seventies. Material collected in the New Caledonian region by French expeditions have been reported by the present author in several papers (Houart, 1983, 1986, 1987a, 1987b, 1988, 1990a, 1990b, 1991) and have already revealed 31 new species of Muricidae and many new range extensions. The nine new taxa here described from the New Caledonian region were collected during the following cruises: R.V. Vauban (1978-79); BIOCAL, R.V. Jean Charcot (1985); MUSORSTOM 5, R.V. Coriolis (1986); BIOGEOCAL, R.V. Coriolis (1987); MUSORSTOM 6, R.V. Alis (1989) and SMIB 5, R.V. Alis (1989). For more complete information about the French exploratory cruises in the New Caledonian region see Richer de Forges (1990).

Four other taxa are described from Australian material collected by HMAS Diamantina (1972), HMAS Kimbla (1977 and 1984), HMAS Moresby (1981), and FRV Soela (1983).

Two species previously only known from off New Caledonia are newly recorded from South Africa, based on material collected during the Natal Museum dredging programme (NMDP), using R.V. Meiring Naudé (1982-1988). One species known from Japan is newly recorded in South Africa, based on specimens in the V. van der Walt collection.

Abbreviations and text conventions:

AMS:	Australian Museum, Sydney, Australia.
IRSNB:	Institut Royal des Sciences Naturelles de Belgique, Brussels, Belgium.
MNHN:	Muséum National d'Histoire Naturelle, Paris, France.
NM:	Natal Museum, Pietermaritzburg, South Africa.
NMNZ:	National Museum of New Zealand, Wellington, New Zealand.
NSMT:	National Science Museum, Tokyo, Japan.
QM:	Queensland Museum, Brisbane, Australia.
USNM:	National Museum of Natural History, Washington D.C., USA.
WAM:	Western Australian Museum, Perth, Australia.
lv.:	live taken specimen(s).
dd:	dead taken specimen(s).

SYSTEMATICS

Family Muricidae Rafinesque, 1815

Subfamily Muricinae Rafinesque, 1815

Genus *Pterynotus* Swainson, 1833

Type species: *Murex pinnatus* Swainson, 1822, by subsequent designation (Swainson, 1833).

Pterynotus fulgens Houart, 1988

Figs. 1-2

Pterynotus fulgens Houart, 1988: 190, figs 4-6, 17.

Type locality

New Caledonia, 22°52'S, 167°12'E, 390-420 m.

Material examined

South Africa: Zululand, NMDP stn ZP5, 28°44.4'S, 32°32.2'E, 320-340 m, 12 June 1988, NM E3988 (1 dd); Transkei, NMDP stn E13, 31°30.6'S, 29°56.1'E, 400-550 m, 04 July 1986, NM C9797 (1 dd); Transkei, NMDP stn K13, 31°56.1'S, 29°26.5'E, 410-430 m, 20 July 1982, NM C2012 (1 lv., 1 dd); North Zululand, NMDP stn ZA14, 26°55.5'S, 32°02.8'E, 500 m, 07 June 1987, NM D8740 (1 lv.), all dredged R.V. Meiring Naudé.

New Caledonia: Type material, comprising the holotype and 12 paratypes, all off southern New Caledonia, in 315-610 m (Houart, 1988), and 6 additional specimens off southern New Caledonia, in 448-680 m (MNHN).

Remarks

I have been unable to detect any constant differences in shell structure between the 5 South African specimens and the New Caledonian material. Most of the New Caledonian specimens have more or less prominent denticles within the aperture, but their strength is not constant and they are sometimes very low or obsolete (BIOCAL, stn DW 33). The discovery of this species in South Africa is a significant range extension.

Pterynotus stenostoma n.sp.

Figs. 3-5

Type material

Southern New Caledonia, SMIB 5, stn DW 105, 23°14'S, 168°05'E, 310 m, B. Richer de Forges-ORSTOM coll., 14 September 1989 (dd) (holotype MNHN).

Description

Shell lightly built, small for the genus, holotype 13.9 mm in length. Spire high with 5 teleoconch whorls, protoconch broken. Teleoconch whorls narrowly fusiform. Suture impressed. Three narrow varices on each teleoconch whorl. Varices of last whorl expanded and flat, adapertural side of varicial wings with numerous, fine growth striae. Former whorls with broken varicial wings. Spiral sculpture on last whorl consisting of 4 or 5 low, narrow, very faint cords, absent on former whorls. No axial sculpture except fine growth striae. Aperture small, ovate, smooth within. Columellar lip smooth, rim adherent. No anal notch. Siphonal canal long, weakly abaxially bent, open, with 2 small, broadly open spines. Brown, darker in the vicinity of suture and on abapical part of last teleoconch whorl.

Remarks

From *Pterynotus fulgens* Houart, 1988, *P. stenostoma* differs in its smaller size compared with a specimen with same number of teleoconch whorls, its aperture being comparatively two or three times smaller in a specimen of approximately the same size, its siphonal canal abaxially bent and longer, with 2 small open spines, whereas that of *P. fulgens* is smooth and abaperturally bent. The varicial wings of *P. stenostoma* are flatter. From *Pterynotus levii* Houart, 1988 it differs in its smaller size, two times smaller and more rounded aperture, longer siphonal canal with two small spines, while the varicial wings are flatter and the spiral cords are fewer in number (13-16 in *P. levii*). Another recently named species, *Ponderia magna* Houart, 1988 is similar in shell contour but is readily distinguishable by the hollow, sealed shoulder spines and siphonal canal, which are characteristic of species of *Ponderia*.

Etymology

Greek, *stenos* (narrow) + *stoma* (mouth), alluding to the narrow and small aperture.

Pterynotus crauroptera n.sp.

Figs 6-7, 43-44

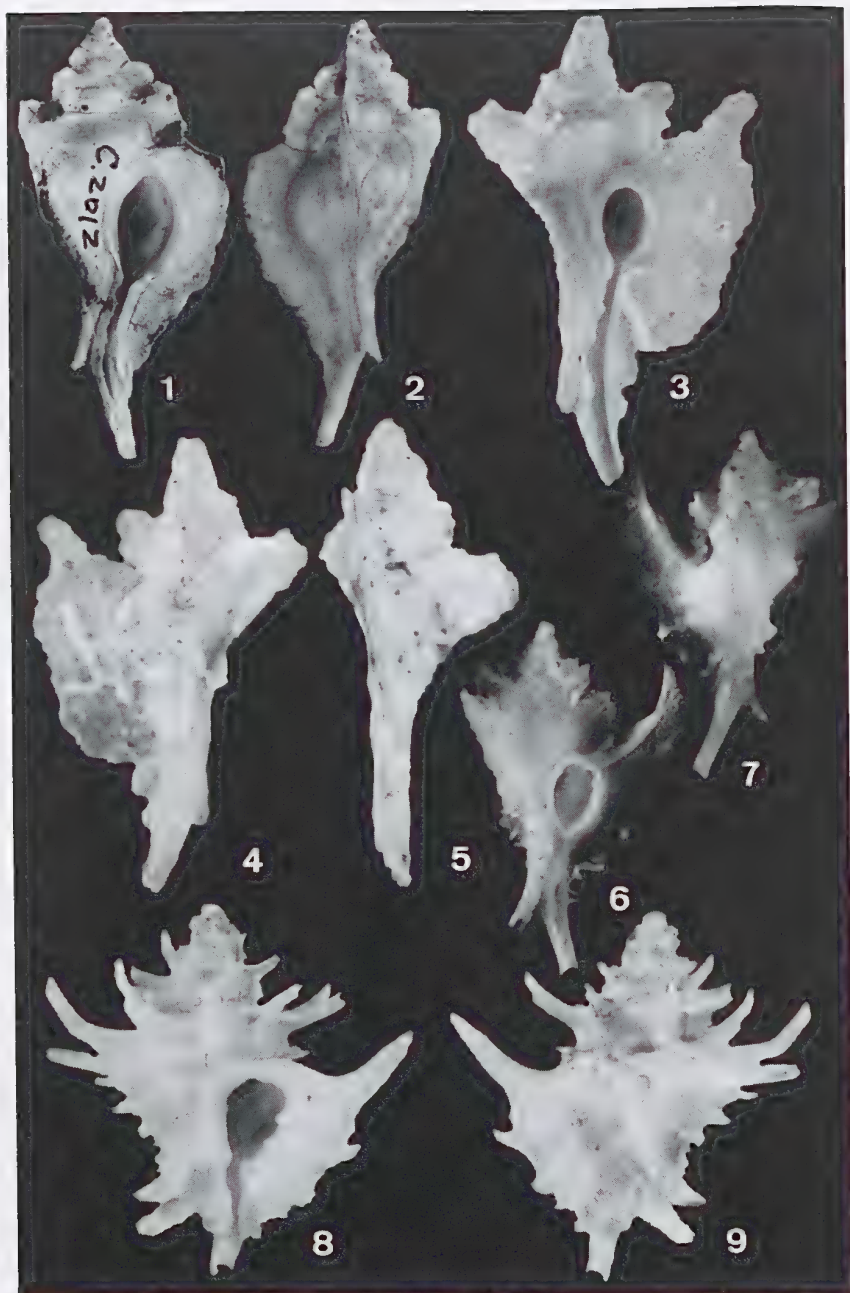
Type material

New Caledonia: BIOCAL, stn DW 64, 24°48'S, 168°09'E, 250 m, Bouchet, Métivier & Richer coll., 03 September 1985 (2 dd) (holotype and paratype MNHN).

Coral Sea: MUSORSTOM 5, Capel Bank, stn DW 270, 24°49'S, 159°34'E, 223 m, Bouchet, Métivier & Richer coll., 09 October 1986 (1 dd) (paratype MNHN).

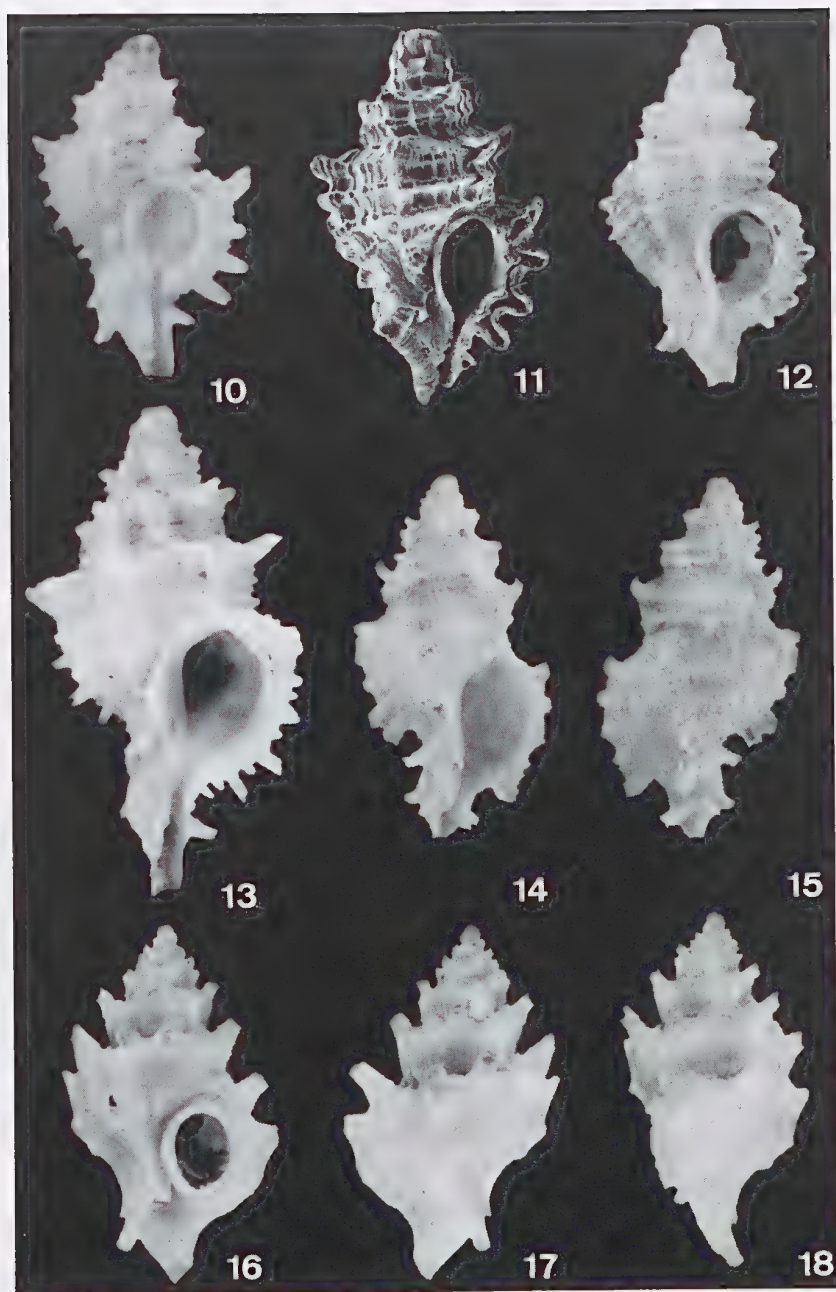
Description

Shell small and delicate, 11.4-15 mm in length at maturity. Spire high with 1.5 protoconch whorls and 5 or 6 narrow teleoconch whorls. Protoconch whorls rounded, smooth and glossy with thin, weakly erect terminal varix (Figs. 43 & 44). Suture weakly impressed. Three wing-like varices on each teleoconch whorl. Wings curved upward, spine-like at shoulder, adapertural side grooved with narrow channel. Intervaricial axial sculpture consisting of a single, prominent node situated midway between each pair of varicial wings, crossed by 2-4 spiral cords on



Figs. 1-9

Figs. 1-2. *Pterynotus fulgens* Houart, 1988, Transkei, South Africa, NM C2012, 24 mm, 3-5. *Pterynotus stenostoma* n.sp., holotype MNHN, 13.9 mm. 6-7 *Pterynotus crauroptera* n.sp., holotype MNHN, 11.4 mm. 8-9. *Pazinotus spectabilis* n.sp., holotype MNHN, 15.2 mm.



Figs. 10-18 Figs. 10-11. *Muricopsis charcoti* n.sp. 10. Holotype MNHN, 7.2 mm. 11. Paratype MNHN, 4 mm (SEM). 12. *Muricopsis auratus* (Kuroda & Habe, 1971), Aliwal Shoal, Natal, South Africa, V. van der Walt coll., 7.2 mm. 13. *Muricopsis bargibanti* n.sp., holotype MNHN, 11.9 mm. 14-15. *Muricopsis diamantina* n.sp., holotype WAM 284-91, 10.3 mm. 16-18. *Typhis westaustralis* n.sp., holotype WAM 286-91, 10.5 mm.

last teleoconch whorl. Spiral sculpture of 5 or 6, more or less prominent, smooth cords; former whorls with 2-4 spiral cords. Aperture small, ovate. Columellar lip smooth, rim erect abapically, a small portion adherent adapically. Anal notch broad, delineated by one small denticle. Outer lip weakly erect, with 5 strong denticles within; adapical denticle strongest. Siphonal canal of moderate length for the genus, narrowly open, abaxially and adaperturally bent, with 2 small open spines. Translucent white, largest paratype with tip of siphonal canal and 2 first teleoconch whorls pale brown.

Remarks

From *Pterynotus levii* Houart, 1988, *P. crauroptera* differs in its more rounded aperture, the erect columellar lip and the denticulate inner side of the outer apertural lip. It has more upwardly curved and spine-like flaring wings, grooved by a narrow channel, a relatively longer siphonal canal with 2 small open spines, and fewer, heavier spiral cords. Another *Pterynotus* species, *P. fulgens* Houart, 1988 (New Caledonia) is twice as large with the same number of teleoconch whorls. The siphonal canal of *P. fulgens* is smooth, the varicial wings are flat and not grooved by a narrow channel, and it lacks the small, conspicuous intervaricial node of *P. crauroptera* in which, moreover, the protoconch is twice as large and more elongate.

Etymology

Greek, *krauros* (fragile) + *pteron* (wing), alluding to the fragility of the varicial wings.

Subfamily Muricopsinae Radwin & D'Attilio, 1971

Genus *Pazinotus* Vokes, 1970

Type species: *Eupleura stimpsonii* Dall, 1889, by original designation.

Remarks on *Pazinotus* Vokes, 1970

Pazinotus is used here as genus, and not as subgenus of *Poirieria* Jousseaume, 1880 (as by Vokes, 1970, 1971; Fair, 1976 and Houart, 1984, 1985) because of radular morphology of *P. spectabilis* n.sp. (fig. 39) and of *P. sibogae* (Schepman, 1911) (unpublished). *Poirieria* has traditionally been classified in the Muricinae while it now appears, thanks to these observations, that *Pazinotus* could belong to the Muricopsinae. There is also a resemblance between the Indo-West Pacific species usually classified in *Pazinotus* (including *P. spectabilis* n.sp.) and the species of *Pygmaepterys* Vokes, 1978, a muricopsine genus. The generic placement of these species of *Pazinotus* is mainly based on their morphological resemblance to *Eupleura stimpsonii* Dall, 1889, the type species of *Pazinotus*. However, before a definitive decision on generic or subgeneric, and subfamilial classification of *Pazinotus* (s.s.) and the Indo-West Pacific species of *Pazinotus* may be taken, the radular morphology of *Eupleura stimpsonii* must be determined.

Pazinotus spectabilis n.sp.

Figs. 8-9, 39, 45

Type material

Loyalty Ridge, MUSORSTOM 6, stn DW 487, 21°23'S, 167°46'E, 500 m, Bouchet & Richer coll., 23 February 1989 (1 lv., 1 dd) (holotype and paratype MNHN); stn DC 402, 20°30'S, 166°49'E, 520 m, Bouchet & Richer coll., 14 February 1989 (1 dd) (paratype MNHN); stn DW 406, 20°41'S, 167°07'E, 373 m, Bouchet & Richer coll., 15 February 1989 (3 lv., 3 dd) (1 paratype AMS C164822, 2

paratypes MNHN, 1 paratype NM T17/K7292, 1 paratype NMNZ MF.57495, 1 paratype USNM 859446; stn DW 457, 21°00'S, 167°29'E, 353 m, Bouchet & Richer coll., 20 February 1989 (1 dd) (paratype MNHN); stn DW 460, 21°02'S, 167°31'E, 420 m, Bouchet & Richer coll., 20 February 1989 (3 lv., 3 dd) (5 paratypes MNHN, 1 paratype coll. R. Houart); stn DW 471, 21°08'S, 167°54'E, 460 m, Bouchet & Richer coll., 22 February 1989 (1 dd) (paratype MNHN).

Description

Shell medium-sized for the genus, spinose, 12-15.1 mm in length at maturity. Spire of moderate height with 1.25 protoconch whorls and up to 5 broad, spinose teleoconch whorls. Protoconch smooth, glossy, weakly shouldered, terminal varix eroded (Fig. 45). Suture weakly impressed. First teleoconch whorl with 6 or 7 lamellae, second and third with 7 or 8 varices and long, open shoulder spine, fourth teleoconch whorl with 7-9 varices, last teleoconch whorl with 6 or 7 spinose varices with long to very long, narrowly open shoulder spine, abapically followed by 3 or 4 smaller open spines. Spines joined to each other by a varicial webbed expansion with crispate adapertural surface. Spiral sculpture consisting of 4 major cords that interconnect the varicial spines, 1-3 minor threads between each pair of cords. Spiral cords more strongly developed on each whorl. Shoulder smooth apart from fine axial growth lines. Aperture roundly-ovate. Columellar lip flared, rim strongly erect, abapically with 2 weak or rather strong nodes, otherwise smooth. Anal notch large, delineated by small denticle. Outer lip weakly erect, 3 or 4 strong denticles within. Siphonal canal of moderate length, with a small, open spine at its base, strongly abaperturally bent at tip. Whitish with adapertural part of siphonal canal and spiral cords of last teleoconch whorl partly brown coloured.

Radula muricopsine with sickle shaped lateral teeth and central tooth with a short, projecting central cusp, and 2 small lateral cusps. Marginal cusps consist of one inner and one outer denticle (Fig. 39).

Remarks

Pazinotus falcatifomis (Thiele, 1925) is larger with an almost smooth, more fusiform shell, only 3 spiral cords on last teleoconch whorl, more strongly curved spines, and fewer varices (5 on last teleoconch whorl). *Pazinotus smithi* (Schepman, 1911) is narrower with 5 spiral cords on the last teleoconch whorl (3 on former whorls), and has more similarly sized varicial wings, while the aperture is larger and more ovate. *Pazinotus sibogae* (Schepman, 1911) is larger with a more strongly imbricate shell surface, longer varicial spines and a larger aperture. *Pazinotus vaubanensis* (Houart, 1986) is about one-half as large with longer varicial spines, a larger and smoother aperture, and a more lightly built shell.

Etymology

Latin, *spectabilis* (remarkable, notable).

Genus *Muricopsis* Bucquoy & Dautzenberg, 1882

Subgenus *Murexsul* Iredale, 1915

Type species: *Murex octogonus* Quoy & Gaimard, 1833, by original designation.

Muricopsis (*Murexsul*) *charcoti* n.sp.

Figs. 10-11, 46-47

Murexsul auratus -Houart, 1986: 431, pl. 4, figs 16, 16A (non Kuroda & Habe, 1971).

Type material

New Caledonia, BIOCAL, stn DW 44, 22°47'S, 167°14'E, 440-450 m, Bouchet, Métivier & Richer coll., 30 August 1985 (3 lv.) (holotype and 1 paratype MNHN, 1 paratype coll. R. Houart). R.V. Vauban, stn 40, 22°30'S, 166°24'E, 250-350 m, Warén coll., June 1979 (3 dd) (2 paratypes MNHN, 1 paratype NMNZ MF.57496).

Description

Shell small, up to 7.2 mm in length (holotype). Spire high with a protoconch of 1.5 whorls and 3.5 spinose teleoconch whorls. Protoconch whorls smooth and glossy, rounded, ending with small, weakly raised terminal varix (Figs. 46 & 47). Suture weakly impressed. 6-8 spinose varices on each whorl. Varices of last teleoconch whorl with 4 open spines of moderate length. One additional small open spine on siphonal canal. No other axial sculpture. Spiral sculpture of last teleoconch whorl consisting of 4 primary cords interconnecting the varicial spines. Occasional presence of secondary cords between each pair of primary cords. Shoulder with 2 spiral threads. Former whorls with 2 or 3 spiral cords and one thread on shoulder. Aperture ovate or roundlyovate. Columellar lip smooth, rim erect. Anal notch obsolete. Weakly erect outer lip, smooth within, except small node abapically. Siphonal canal short, straight and open. Whitish with orange blotches on shoulder and base of siphonal canal. Fresh specimens with brownish periostracum.

Remarks

Muricopsis (Murexsul) auratus (Kuroda & Habe, 1971), here first recorded from South Africa (Fig. 12), has a higher spire with 8-10 varices on each whorl, a different spiral sculpture consisting of "spiral cords of various strength on the surface besides two strong ones" (Kuroda & Habe, 1971: 141), and 5 or 6 rather small open varicial spines on the last teleoconch whorl.

Etymology

Named after the R.V. Jean-Charcot, from which part of the material was collected.

***Muricopsis (Murexsul) bargibanti* n.sp.**

Figs. 13, 37-38, 48-49

Type material

Coral Sea: MUSORSTOM 5, stn DW 347, Chesterfields Reefs, 19°39'S, 158°28'E, 260 m, Bouchet, Métivier & Richer coll., 17 October 1986 (holotype and paratype MNHN); stn DW 277, Kelso Bank, 24°11'S, 159°35'E, 270 m, Bouchet, Métivier & Richer coll., 10 October 1986 (1 dd) (paratype MNHN); stn DC 345, Chesterfields Reefs, 19°40'S, 158°32'E, 305-310 m, Bouchet, Métivier & Richer coll., 16 October 1986 (1 dd) (paratype coll. R. Houart); stn DW 346, Chesterfield Reefs, 19°40'S, 158°27'E, 245-252 m, Bouchet, Métivier & Richer coll., 17 October 1986 (2 dd) (paratypes MNHN); stn DC 368, Chesterfields Reefs, 19°52'S, 158°33'E, 305 m, Bouchet, Métivier & Richer coll., 20 October 1986 (1 dd) (paratype NMNZ MF.57497).

Description

Shell small, up to 11.9 mm in length (holotype). Spire high with a protoconch of 1.25 to 1.5 whorls and 5 spinose teleoconch whorls. Protoconch whorls smooth, weakly keeled, ending with sharp, erect terminal varix (Figs. 48 & 49). Suture weakly impressed. First teleoconch whorls with 7 or 8 axial lamellae, second and third with 8 varices, fourth with 7. Last teleoconch whorl with 6 low, spinose

varices. Other axial sculpture consisting of fine growth striae and 3-5 frilly lamellae between each pair of varices. Varices of last teleoconch whorl with 4 short, acute spines, and 6 or 7 open, short spinelets between spines. Spiral sculpture of last teleoconch whorl of 4 or 5 primary, and 6 or 7 secondary squamous cords interconnecting varicial spines. Shoulder with 2 or 3 low spiral threads. Former whorls with 3 spiral cords. Aperture roundly-ovate. Columellar lip smooth, rim flaring, adherent at adapical extremity. Anal notch obsolete. Outer lip smooth with 3 low and shallow nodes within. Siphonal canal moderately long, straight, open with one short open spine. Whitish with irregularly spaced small yellow or orange blotches. Siphonal canal light pink in the holotype only.

Remarks

Muricopsis (Murexsul) metivieri Houart, 1988 from New Caledonia has a more globose shell with different spiral sculpture consisting of 7 or 8 equal-sized cords, ending as large and broadly open varicial spines. *M. charcoti* is smaller and quite different (see description in this paper). *M. interserratus* (Sowerby, 1879) (= *Murexsul zonatus* Hayashi & Habe, 1965) has a twice smaller, rounded protoconch, higher spiral cords, fewer spiral threads, and strongly adapically bent shoulder spines. *M. multispinosus* (Sowerby, 1904) (= *Murex azami* Kuroda, 1929) is almost twice larger, more spinose with a very long siphonal canal, different spiral sculpture and a smaller, more rounded protoconch. *M. tokubeii* (Nakamigawa & Habe, 1964) is larger with 6 long, open spines on the varices of last teleoconch whorl, 4 or 5 shoulder threads, and twice smaller rounded protoconch.

Etymology

Named after Mr Georges Bargibant, technician of Centre ORSTOM, Nouméa, whose profound knowledge of the reef fauna resulted in the discovery of numerous new invertebrates in New Caledonian waters.

Muricopsis (Murexsul) diamantina n.sp.

Figs. 14-15, 50-51

Type material

West of Garden Island, Western Australia, HMAS Diamantina, stn 33, 32°15.7'S, 115°06.7'E, 176-182 m, 17 March 1972 (1 dd) (holotype WAM 284-91); north-west of Bunbury, Western Australia, HMAS Diamantina, stn 6, 33°00'S, 114°37' E, 200-221 m, 15 March 1972 (2 dd) (paratypes AMS C157138); west of Cape Hamelin, Western Australia, HMAS Diamantina, stn 18, 34°15'S, 114°30'E, 219-274 m, 16 March 1972 (4 dd) (1 paratype AMS C157729, 3 paratypes WAM 285-91); south-west of Cape Naturaliste, HMAS Diamantina, stn 22, 33°35.1'S, 114°31.4'E, 176-183 m, 16 March 1972 (1 dd) (paratype IRSNB IG 27725); Recherche Archipelago, Western Australia, HMAS Moresby, stn 18, 34°19.5'S, 121°27'E, 80 m, 14 March 1981 (1 dd) (paratype MNHN).

Description

Shell small, up to 11 mm in length at maturity. Spire high with a protoconch of 1.5 whorls and up to 4 or 5 shouldered teleoconch whorls. Protoconch whorls smooth, rounded, ending with sharp, weakly erect terminal varix (Figs. 50 & 51). Suture weakly impressed, largely obscured by axial lamellae of following whorl. First teleoconch whorl with 8 varices, second with 7, third and fourth with 6, last teleoconch whorl with 4 or 5 low, weakly spinose varices. Other axial sculpture consisting of numerous, frilled lamellae, covering the whole surface of shell. Spiral sculpture of last teleoconch whorl of 5 rounded, high cords, ending as 5 short,

blunt, widely open spines on varices, usually interconnected webbing. Shoulder spine and last two abapical spines strongest. Former whorls with 2 spiral cords and small shoulder spine. Aperture large and ovate. Columellar lip smooth, rim erect abapically, adherent on small portion abapically. Anal notch obsolete. Outer lip apparently smooth but fragile and broken in all specimens. Siphonal canal short, open, with one small, open spinelet. Whitish with some traces of pale brown at shoulder, but all specimens dead collected.

Remarks

Most similar to *Muricopsis (Murexsul) interserratus* (Sowerby, 1879) from Japan, *Muricopsis (Murexsul) kieneri* (Reeve, 1845), and *Muricopsis (Murexsul) nothokieneri* (Vokes, 1978), both from South Africa. *Muricopsis interserratus* differs in having more numerous varices, longer, adapically curved shoulder spines, comparatively smaller aperture, longer siphonal canal and broader shell. *Muricopsis kieneri* and *M. nothokieneri* both differ in having 8-10 varices on last teleoconch whorl, more numerous spiral cords, broader and smaller aperture, acute and keeled protoconch.

Etymology

Named after HMAS Diamantina, from which the type material was collected.

Subfamily Typhinae Cossman, 1903.

Remarks

Houart (1991) recorded 11 species of Typhinae in the New Caledonian region, of which 5 were described as new. He used individual measurements of shell characters that will be also taken in account here:

- A. Length of the shell: taken from the apex to the tip of the siphonal canal.
- B. Breadth of the shell: largest breadth, not including anal tubes.
- C. Length and breadth of the aperture: largest measurements, taken from the inner side of the peristome.
- D. Length of the siphonal canal.
- E. Length of the apertural anal tube.
- F. Breadth of the apertural tube: largest breadth, taken near the base.
- G. Tube angle: the shell is placed with the apex above, the aperture facing left; the angle is measured between the axis of the shell and the axis of the anal tube, near its point of exit.

Genus *Typhis* Montfort, 1810

Subgenus *Typhis* Montfort, 1810

Type species: *Purpura tubifer* Bruguière, 1792, by original designation.

Typhis (Typhis) westaustralis n.sp.

Figs. 16-18, 53

Type material

West of Garden Island, Western Australia, HMAS Diamantina, stn 33, 32°15.7'S, 115°06.7'E, 176-182 m, 17 March 1972 (1 dd) (holotype WAM 286-91); west of Garden Island, Western Australia, HMAS Diamantina, stn 32, 32°15'S, 115°07'E, 210-212 m, 17 March 1972 (4 dd) (paratypes AMS C157122); WNW of Lancelin, Western Australia, HMAS Diamantina, stn 39, 30°58'S, 114°53'E, 154 m, 18 March 1972 (2 dd) (paratypes AMS C157127, WAM 287-91).

Description

Shell small, up to 10.5 mm in length at maturity (holotype). Spire high with 1.5 protoconch whorls and 5 teleoconch whorls. Protoconch whorls weakly elongate, smooth and glossy (Fig. 53). Suture impressed. Each teleoconch whorl with 4 varices. Varices of last teleoconch whorl with 3 small, very low spines. Shoulder spine longest. Varices joining former whorl with a strong varicial buttress. A rounded anal tube originates from succeeding varix, forming an angle of approximately 60-65° with the axis of the shell. Spiral sculpture consisting of numerous, shallow striae, and 2 shallow cords that interconnect varicial spines. Aperture rounded, rim erect and smooth, forming an entire peristome. Siphonal canal short, sealed, hollow and smooth, weakly abaperturally bent at tip. Whitish with traces of light orange blotches on last teleoconch whorl.

Measurements

(holotype): A-B: 10.5 X 6.3 mm; C: 2.3 X 1.7 mm; D: 2.6 mm; E: 2.2 mm (partially broken); F: 0.9 mm; G: 60°.

Remarks

Typhis (Typhis) philippensis (Watson, 1883) has a shell with more strongly spinose varices without buttresses, and straighter anal tubes, forming an angle of approximately 80°-90° with the axis of the shell. *Typhis (Typhis) wellsii* Houart, 1985 has a broader shell, almost three times larger with the same number of teleoconch whorls, and it has more spinose varices and spinose siphonal canal.

Etymology

Named after the known geographical range of the species (Western Australia).

Subgenus *Hirtotyphis* Jousseaume, 1880

Type species: *Murex horridus* Brocchi, 1814, by original designation.

***Typhis (Hirtotyphis) trispinosus* n.sp.**

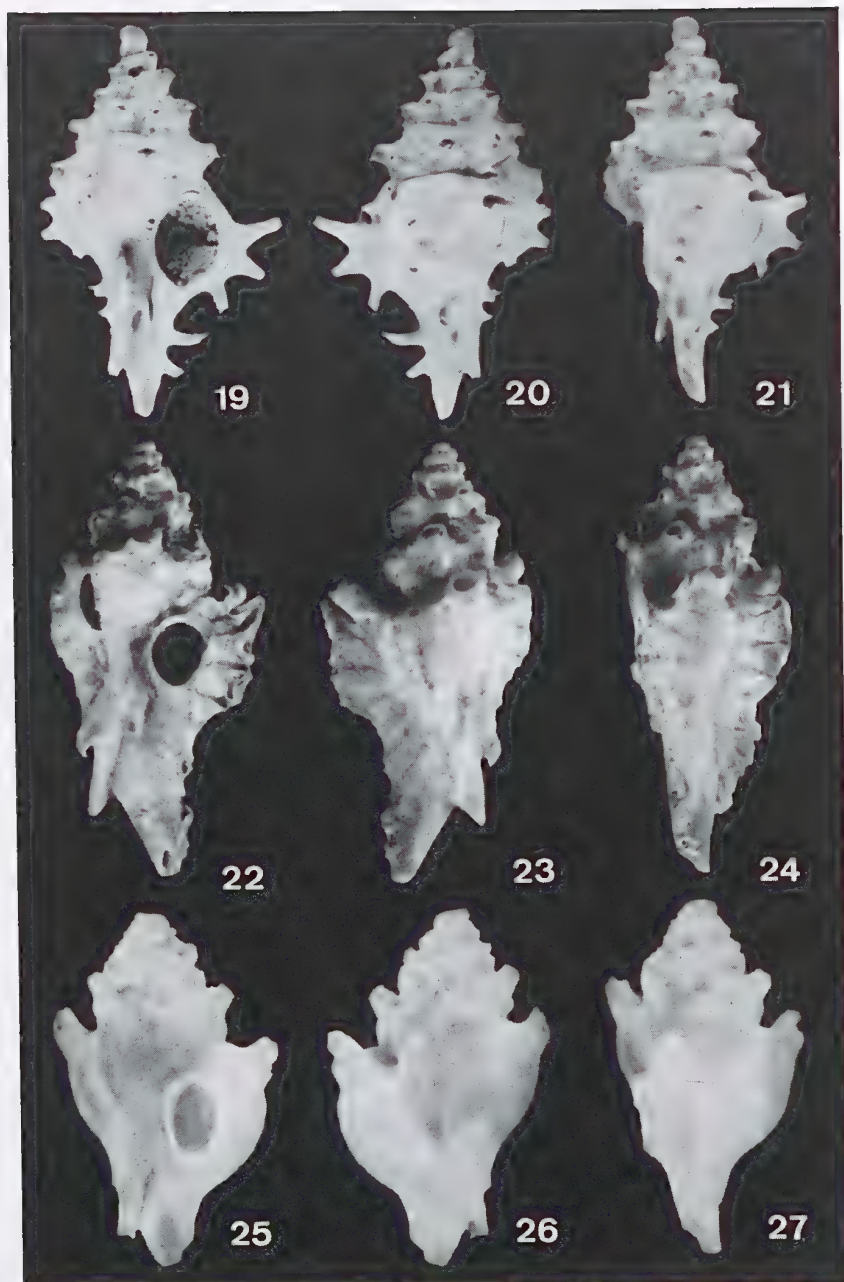
Figs. 19-21, 52

Type material

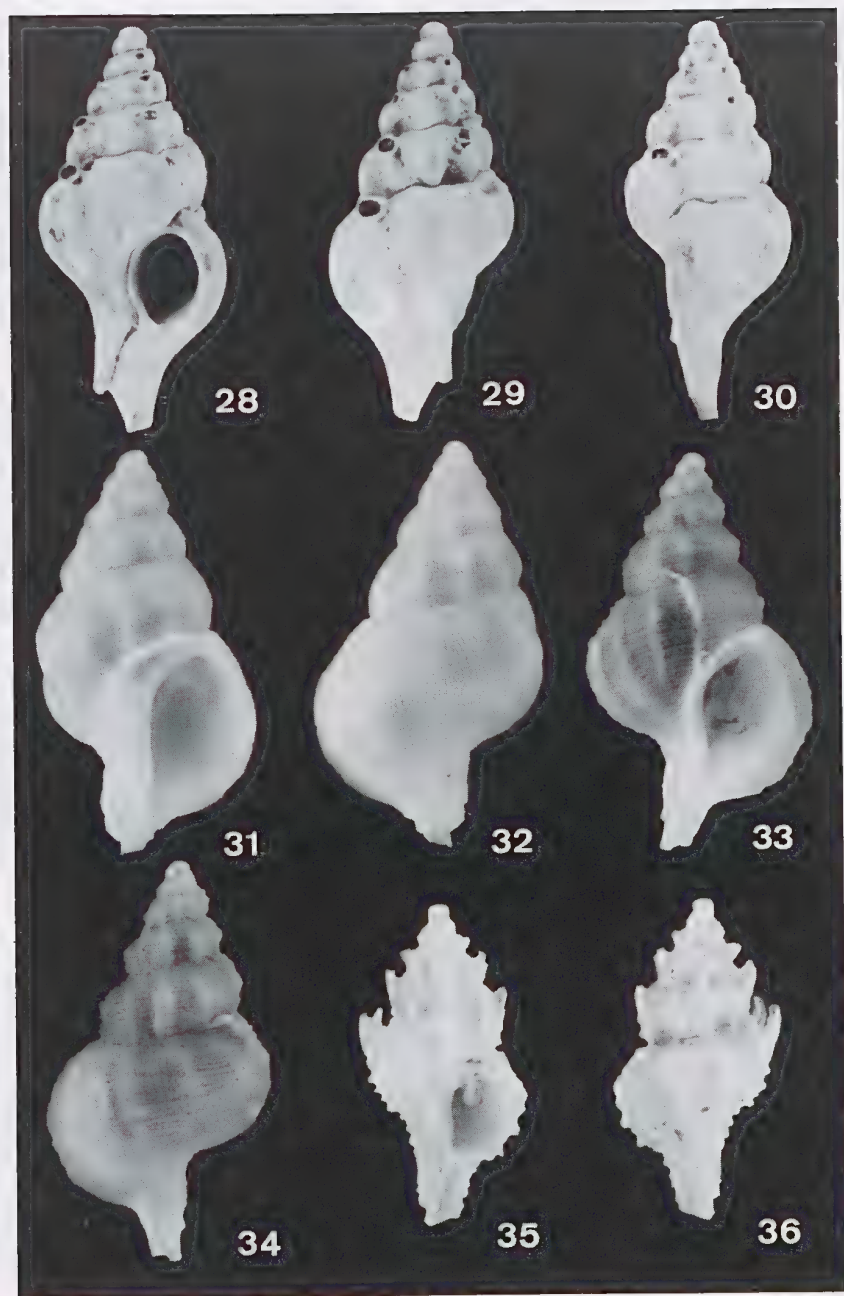
Northeast of Lady Musgrave Island, Queensland, HMAS Kimbla, stn 24, 23°38.8'S, 152°45.5'E, 365 m, Globigerina mud/siliceous sponge, Ponder, Loch & Terrill coll., 14 December 1977 (1 dd) (holotype AMS C157142); east of North West Island, Queensland, HMAS Kimbla, stn 22, 23°15.2'S, 152°24.1'E, 284 m, Ponder, Loch & Terrill coll., 14 December 1977 (1 dd) (paratype AMS C157140).

Description

Shell medium sized for the genus, spinose, up to 13.5 mm in length at maturity (paratype). Spire high, acute, with 1.75 to 2 protoconch whorls and 5 spinose teleoconch whorls. Protoconch whorls weakly elongate, smooth, glossy (Fig. 52). Suture impressed. Each teleoconch whorl with 4 varices. Varices of last teleoconch whorl with 3 short, closed, hollow spines. Apical spine weakly apically bent, second nearly straight, third abapically bent. Penultimate whorl with 2 spines on each varix. Other axial sculpture of numerous shallow growth striae. Spiral sculpture obsolete. A rounded, weakly abapically bent anal tube originates just near preceding varix, forming an angle of approximately 100° with the axis of the shell. All tubes broken off. Aperture ovate, rim erect and smooth, forming an entire peristome. Siphonal canal medium-sized for the genus, sealed and hollow, with 2 closed, hollow, short spines. Whitish.



Figs. 19-27 Figs. 19-21. *Typhis trispinosus* n.sp., holotype AMS C157142, 12 mm. 22-24. *Typhis insolitus* n.sp., holotype MNHN, 16.9 mm. 25-27. *Siphonochelus lozoueti* n.sp., holotype MNHN, 9.4 mm.



Figs. 28-36 Figs. 28-30. *Siphonochelus tillierae* Houart, 1986. Transkei, South Africa, NM C8827, 9.5 mm. 31-32. *Trophon lacrima* n.sp., holotype MNHN, 9 mm. 33-34. *Trophon tirardi* n.sp., 12 mm. 35-36. ?*Trophon aberrans* n.sp., holotype AMS C157138, 6.3 mm.



37



38



39



40



41



42

Figs 37-42. Radulae (scale bars 10 μ m). 37-38. *Muricopsis bargibanti* n.sp., holotype. 39. *Pazinotus spectabilis* n.sp., paratype MNHN. 40. *Trophon lacrima* n.sp., paratype MNHN. 41-42. *Trophon tirardi* n.sp., paratype MNHN.

Measurements

(holotype): A-B: 12 X 7.9 mm; C: 3.2 X 2.3 mm; D: 3.7 mm (tip broken); E: broken; F: 1.6 mm; G: 100°.

Remarks

Because of the typical varicial spines, *Typhis* (*H.*) *trispinosus* is apparently most closely related to the fossil species *T. (H.) horridus* (Brocchi, 1814) (Upper Miocene-Pliocene, Italy and France), *T. (H.) maccoyi* Woods, 1876 (Oligocene, Australia), and *T. (H.) panoplus* Maxwell, 1971 (Upper Oligocene, New Zealand). *Typhis* (*H.*) *trispinosus* differs from all three in its narrower outline and smaller size. Moreover, *T. horridus* and *T. planopus* both have spineless siphonal canals, and *T. maccoyi* has 4 spines on the varices of the last teleoconch whorl, less abapically bent anal tubes (approximately 85-90° with the axis of the shell), while the rounded protoconch is half to almost a third the size.

Etymology

Latin, *trispinosus* (with three spines), alluding to the three spines on the varices of last teleoconch whorl.

Subgenus *Typhinellus* Jousseaume, 1880

Type species: *Typhis sowerbii* Broderip, 1833, by original designation.

Typhis (*Typhinellus*) *insolitus* n.sp.

Figs. 22-24

Type material

Loyalty Ridge, MUSORSTOM 6, stn DW 406, 20°41'S, 167°07'E, 373 m, Bouchet & Richer coll., 15 February 1989 (1 dd) (holotype MNHN); stn DW 407, 20°41'S, 167°07'E, 360 m, Bouchet & Richer coll., 15 February 1989 (1 dd) (paratype MNHN).

Description

Shell medium-sized for the subgenus, up to 16.9 mm in length at maturity (holotype). Spire high, with 5 teleoconch whorls and broken protoconch. Suture impressed. Each whorl with 4 varices. Varices of last teleoconch whorl sharp, adaperturally squamose, with 3 short, narrowly open, broad spines. Shoulder spine adapically bent. Spines connected on each other with varicial flange extending almost to the tip of siphonal canal (paratype). Axial sculpture of fine, numerous striae. No trace of spiral sculpture except darker coloured spiral lines that interconnect varicial spines. A weakly flattened anal tube originates about midway between each pair of varices, forming an angle of approximately 50° with the axis of the shell. Aperture rounded, rim strongly erect, forming an entire peristome. Siphonal canal long, sealed, with 2 or 3 small open spines covered by varicial flange. Light brown with 6 darker fine spiral lines, 4 on last teleoconch whorl and 2 on siphonal canal.

Measurements

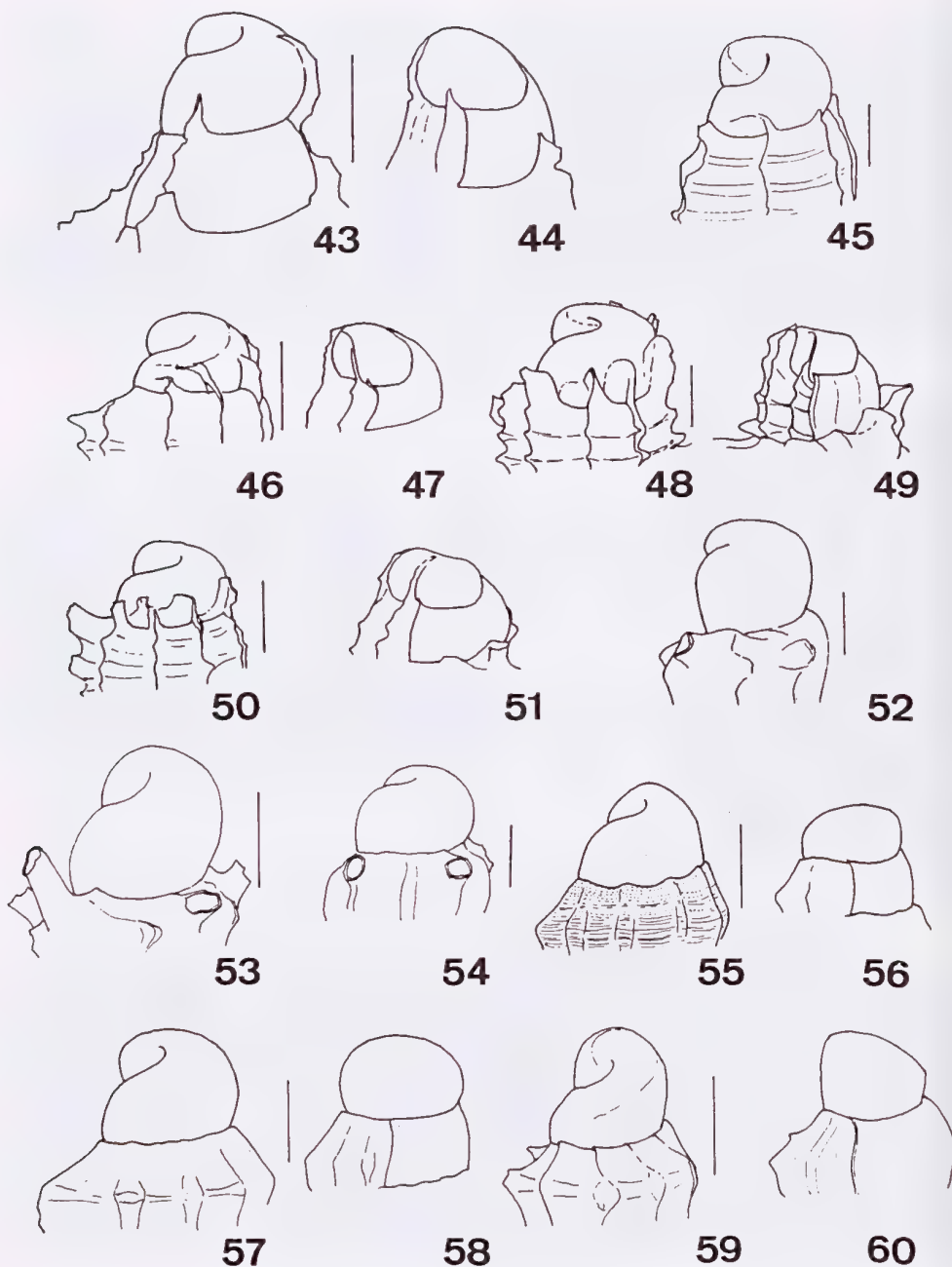
(holotype): A-B: 16.9 X 8.3 mm; C: 2.4 X 1.8 mm; D: 7 mm; E: 2.3 mm; F: 1.7 mm; G: 50°.

Remarks

No related species could be found.

Etymology

Latin, *insolitus* (unusual), alluding to the unusual shape of the shell.



Figs. 43-60. Protoconchs (scale bars 0.5 mm). 43-44. *Pterynotus crauroptera* n.sp. 45. *Pazinotus spectabilis* n.sp. 46-47. *Muricopsis charcoti* n.sp. 48-49. *Muricopsis bargibanti* n.sp. 50-51. *Muricopsis diamantina* n.sp. 52. *Typhis trispinosus* n.sp. 53. *Typhis westaustralis* n.sp. 54. *Siphonochelus tillierae* Houart, 1986. 55-56. *Trophon lacrima* n.sp. 57-58. *Trophon tirardi* n.sp. 59-60. ?*Trophon aberrans* n.sp.

Genus *Siphonochelus* Jousseaume, 1880**Subgenus *Siphonochelus* Jousseaume, 1880**

Type species: *Typhis arcuatus* Hinds, 1844, by original designation.

***Siphonochelus (Siphonochelus) lozoueti* n.sp.**

Figs. 25-27

Type material

Loyalty basin, east of New Caledonia, BIOGEOCAL, stn DW 253, 21°32'S, 166°29'E, 310-315 m, Lozouet coll., 16 April 1987 (dd) (holotype MNHN).

Description

Shell small, fusiform, holotype 9.4 mm in length. Spire high with 5 teleoconch whorls. Protoconch broken. Suture impressed. Axial sculpture consisting of 4 rounded varices and of a shallow, elongate node near preceding varix. Varices broad on last teleoconch whorl. A weakly flattened anal tube originates from the varix, weakly adapically bent, forming an angle of approximately 60° with the axis of the shell. Varices sharper on former whorls. Spiral sculpture of numerous striae covering the whole surface of two last teleoconch whorls. Aperture ovate, smooth, rim erect, forming an entire peristome. Siphonal canal short, tubular and sealed. Whitish.

Measurements

A-B: 9.4 mm X 5.2 mm (apex broken); C: 1.8 mm X 1.2 mm; D: 2.8 mm; E: broken; F: 1.5 mm; G: 60°.

Remarks

Siphonochelus japonicus (A. Adams, 1863) has an aperture that is relatively twice as large, a narrower shell, smaller, more adapically bent anal tubes, more rounded varices and smooth shell.

The New Caledonian *Siphonochelus boucheti* Houart, 1991 is similar but has a more elongate shell with more flattened and adapically bent anal tubes, more strongly developed varices and no spiral striae.

Etymology

Named for Pierre Lozouet, museum technician at MNHN, who collected molluscs on board of R.V. Coriolis during the BIOGEOCAL cruise, in recognition for his generous and friendly assistance in many ways.

Subgenus *Laevityphis* Cossmann, 1903

Type species: *Typhis coronarius* Deshayes, 1865 (= *Typhis muticus* J. Sowerby, 1834), by original designation.

***Siphonochelus (Laevityphis) tillierae* Houart, 1986**

Figs. 28-30, 54

Siphonochelus (Laevityphis) tillierae Houart, 1986: 442, pl. 2, figs. 6, 6A.

Type locality

New Caledonia, 22°30'S, 166°24'E, 250-350 m.

Material examined

South Africa: off Monte Belo, Limpopo area, 421 m, NM A26 (2 dd); NMDP, stn J8, Transkei, off Mgazi River, 31°44.8'S, 29°33.0'E, 370 m, 04 July 1985, NM

E7631 (1 dd), NM C8827 (1 dd, 1 lv.); NMDP stn J9, Transkei, off Mgazi River, 31°44.4'S, 29°32.7'E, 300 m, 04 July 1985, NM E7632 (1 dd), NM E7747 (1 dd), NM C9201 (1 lv.); NMDP stn J10, Transkei, off Mgazi River, 31°44.3'S, 29°32.2'E, 350 m, 04 July 1985, NM E1046 (2 dd), NM E5585 (6 dd), NM E7633 (8 d), NM C8863 (4 dd); NMDP stn J11, Transkei, off Mgazi River, 31°44.3'S, 29°32.2'E, 250 m, 04 July 1985, NM C8945 (1 dd); NMDP stn E13, Transkei, off Waterfall Bluff, 31°30.6'S, 29°56.1'E, 400-550 m, 04 July 1986, NM C9785 (1 dd); NMDP stn ZR13, Zululand, off Matigulu River mouth, 29°22.8'S, 31°58.7'E, 520 m, 16 June 1989, NM E8731 (1 dd). All dredged R.V. Meiring Naudé.

New Caledonia

Type material consisting of the holotype and one paratype, both from the type locality, and 17 additional specimens from southern to northern New Caledonia, between 565 and 1380 m, live collected material in 760-790 m only (MNHN).

Remarks

As for *Pterynotus fulgens* Houart, 1988 (see above), the discovery of several specimens of *S. tillierae* in South Africa considerably extends its geographical range.

Subfamily Trophoninae Cossmann, 1903

Genus *Trophon* Montfort, 1810

Type species: *Murex magellanicus* Gmelin, 1791 (= *Buccinum geversianum* Pallas, 1774) by original designation.

Trophon lacrima n.sp.

Figs. 31-32, 40, 55-56

Type material

South of New Caledonia, BIOCAL, stn DW 44, 22°47'S, 167°14'E, 440-450 m, Bouchet, Métivier & Richer coll., 30 August 1985 (50 lv. & dd) (Holotype and 37 paratypes MNHN; 2 paratypes AMS C164823; 2 paratypes coll. R. Houart; 2 paratypes NM T280/K7294; 2 paratypes NMNZ MF.57498; 1 paratype NSMT Mo-69563; 2 paratypes USNM 859447); SMIB 2, stn DW 02, 22°52'S, 167°13'E, 415 m, Bargibant & Tirard coll., 05 February 1986 (1 lv.) (paratype MNHN).

Description

Shell small for the genus, lightly built, up to 11.1 mm in length at maturity. Spire high and acute, with 1.5 protoconch whorls and up to 5 weakly shouldered teleoconch whorls. Protoconch conical, whorls smooth, ending with a very weakly erect terminal varix (Figs. 55 & 56). Suture lightly appressed. First and second teleoconch whorls with 9 or 10 low axial ridges, third and fourth with 8 or 9 ridges, and last teleoconch whorl with 5-7 axial ridges. From fourth teleoconch whorl the ridges becoming irregularly placed, leaving generally a broad gap between penultimate and last varix, some of these varices forming a sharp, arched lamella on last teleoconch whorl. Other axial sculpture consisting of growth striae. Spiral sculpture of numerous, fine lirae covering the whole surface of shell. Aperture broad, large. Columellar lip flaring, smooth, rim partially erect, adherent adapically on a small portion. Anal notch shallow. Outer lip thin and smooth. Siphonal canal short, narrowly open, smooth, bent adaperturally. Whitish with very light brownish blotches. Operculum brownish with apical nucleus. Radula consisting of a sickle shaped lateral tooth and a central tooth with long central cusp, 2 smaller lateral cusps and 1 or 2 marginal denticles (Fig. 40).

Remarks

The radula is almost identical to that of such *Trophon* species as *T. cepula* Sowerby, *T. nodulosus* (Golikov, 1985) (unpublished) and *Trophon multigradus* Houart, 1990 (Houart, 1990a: 212), and suggested the generic placement of the species.

Etymology

Latin, *lacrima* (tear), alluding to the shape of the shell.

***Trophon tirardi* n.sp.**

Figs 33-34, 41-42, 57-58

Type material

South of New Caledonia, BIOCAL, stn DW 51, 23°05'S, 167°45'E, 680-700 m, Bouchet, Métivier & Richer coll., 31 August 1985 (53 lv. & dd) (Holotype and 42 paratypes MNHN; 2 paratypes AMS C164824; 2 paratypes coll. R. Houart; 2 paratypes NM T363/K7295; 2 paratypes NMNZ MF.57499; 1 paratype NSMT Mo-69564; 2 paratypes USNM 859448); stn DW 33, 23°10'S, 167°10'E, 675-680 m, Bouchet, Métivier & Richer coll., 29 August 1985 (11 lv.) (paratypes MNHN); stn DW 36, 23°09'S, 167°11'E, 650-680 m, Bouchet, Métivier & Richer coll., 29 August 1985 (1 lv.) (paratype MNHN). New Caledonia, MUSORSTOM 4, stn DW 220, 22°58'S, 167°38'E, 505-550 m, Bouchet & Richer coll., 29 September 1985 (3 lv.) (paratypes MNHN); stn DW 221, 22°59'S, 167°37'E, 535-560 m, Bouchet & Richer coll., 29 September 1985 (2 lv.) (paratypes MNHN); stn DW 222, 22°58'S, 167°33'E, 410-440 m, Bouchet & Richer coll., 30 September 1985 (2 lv.) (paratypes MNHN).

Description

Shell small for the genus, globose, up to 12 mm in length at maturity. Spire high, with 1.5 protoconch whorls and up to 5 broadly convex, weakly shouldered teleoconch whorls. Protoconch whorls rounded and smooth, ending with a shallow terminal varix (Figs. 57 & 58). Suture impressed. Axial sculpture of first to third teleoconch whorls of 8-10 low and sharp ribs, fourth whorl with 9 or 10 ribs and last teleoconch whorl with 8 or 9 ribs. Some ribs produce erect, irregularly placed, arched lamellae. Other axial sculpture consisting of numerous, frilled, lirae. Spiral sculpture of 10-14 nodulose, shallow or strongly developed cords on last teleoconch whorl. Carinal cord sometimes stronger, with an occasional small knob or spine where it cross axial ribs. Aperture large and broad with flaring columellar lip, rim erect. Anal notch shallow. Outer lip thin and smooth, occasionally with small abapical denticle within. Siphonal canal short, narrowly open with 5 or 6 spiral cords on its base, tip smooth. Shell uniformly whitish to very light brown. Operculum light brown with apical nucleus. Radula with sickle shaped lateral tooth and a central tooth with a long central cusp, occasionally small lateral folds, 2 lateral cusps and 1 or 2 marginal denticles or folds (Figs. 41 & 42).

Remarks

Trophon tirardi is related to the preceding species but differs in having a larger shell with more rounded protoconch, fewer, more strongly developed spiral cords, and more axial ribs on the last teleoconch whorl.

Etymology

Named after Mr Philippe Tirard, technician of Centre ORSTOM, Nouméa.

?*Trophon aberrans* n.sp.

Figs. 35-36, 59-60

Type material

Southeast of Swain Reefs, Queensland, HMAS Kimbla, stn 7, 22°26.2'S, 153°17.6'E, 187 m, P.H. Colman coll., 05 July 1984 (5 dd) (holotype AMS C157138 and 2 paratypes AMS C164825; 1 paratype MNHN; 1 paratype QM Mo 30110).

Description

Shell small for the genus, stout, up to 6.9 mm in length. Spire high with 1.5 protoconch whorls and up to 4 elongate teleoconch whorls. Protoconch whorls elongate, smooth and keeled, ending with a shallow, weakly erect, thin terminal varix (Figs. 59 & 60). Suture impressed. Axial sculpture of first teleoconch whorl consisting of 8 or 9 strongly developed axial ribs, second whorl with 9 ribs, third with 10 ribs, last teleoconch whorl with 9 or 10 strongly developed axial ribs. Axial ribs producing short, open, adapically bent spines on shoulder. No other axial sculpture. Spiral sculpture of last teleoconch whorl of 4 cords, more strongly developed on the axial ribs, giving the shell a somewhat nodulose aspect. Penultimate whorl with 1 or 2 shallow spiral cords. No spiral sculpture on former whorls. Aperture broadly ovate. Columellar lip smooth, rim broken. Anal notch shallow. Outer lip smooth. Siphonal canal short, straight and open, with 2 or 3 shallow spiral cords and remnants of axial ribs. Whitish.

Remarks

The generic classification of this species is only tentative. The shell resembles some other Australian species for which the radula is unknown, and that are currently classified in *Trophon* (s.l.). ?*Trophon latior* Verco, 1909 is a South Australian species with 2.5 rounded protoconch whorls, fewer spiral ribs and no shoulder spines. ?*Trophon segmentatus* Verco, 1909, another South Australian species, has a rounded protoconch and narrow axial ribs produced into sharp lamellae on the teleoconch whorls.

Etymology

Latin, *aberrans* (aberrant), alluding to the questionable generic classification.

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